



Training Version 20.2

With the release of Version 20.2, all prior TASER training materials and Training Bulletins are superseded and rendered obsolete.

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Goal

To provide the basic operational theory and practical training to reasonably, safely and effectively operate TASER Conducted Electrical Weapons (CEWs).

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Release and Warning Requirements

- **Warning Acknowledgement:** All students attending TASER User certification courses will be required to **acknowledge** that they have read and understand the warnings prior to participating in any hands-on CEW drills required by the certification course.
- **You are only required to sign a release if you take a voluntary exposure***
- Updated copies of Version 20.2 documents can be found on the Training Resource page at <https://www.axon.com/training/resources>

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Course Objectives

Upon completion of this course, students will be able to:

- Explain the technology associated with X2
- Describe the nomenclature and operation of the X2
- Describe the nomenclature and operation of the TASER Smart cartridge
- Explain proper care and troubleshooting techniques
- Explain CEW Smart Use Considerations
- Explain the Tactical Considerations associated with CEW use
- Explain proper probe placement and aiming requirements
- Demonstrate safe handling of CEWs

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Disclaimers

- TASER Training does NOT set use of force policies, general orders, or procedures.
- TASER Training does not give legal advice and nothing contained in these training materials creates any form of attorney-client relationship. Be sure to consult with your local legal advisors for any legal advice, guidance, or direction.
- TASER training materials may include videos or other information from outside sources to facilitate discussion. The inclusion of such materials is not an endorsement of the procedures or tactics depicted.

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Disclaimers

- Each agency is responsible for creating its own use of force policies and procedures.
- Use of force policy should address CEW use, and should be communicated to all officers.
- TASER CEWs are serious weapons and should be treated as such at all times.
- TASER CEWs are not a substitute for authorized deadly force.

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Safety Rules

- The safety switch on all TASER CEWs will remain in the down (SAFE) position unless the instructor directs students to arm the CEW or when it is appropriate to do so during a training drill
- TASER CEWs must not be pointed at any person or body part unless the instructor directs students to do so as part of a training exercise or scenario

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Expectations

You must successfully complete the entire curriculum to be certified by TASER Training as a TASER CEW User

- **Users must be recertified annually or more frequently as necessary to stay current with updated manufacturer warnings/training and court decisions**

Ask questions. If we do not know the answer, we will find it for you.

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Safety Rules

- A TASER CEW loaded with a live cartridge must not be pointed at another person or body part except during voluntary exposures
- An LS (blue) training cartridge must be used for simulation exercises when the subject being targeted is wearing a protective simulation suit
- LASERs must not be pointed at eyes
- Probes must be removed according to proper protocol

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Safety Rules

- **No live firearms in training area**
- **Every participant is responsible for immediately reporting any safety issues.** If an unsafe condition occurs or is noticed during an exercise, the student or instructor observing the unsafe condition will call "**STOP ACTION!**"
- One student or instructor will be designated as the safety officer during each exposure, live fire and practical exercise/scenario*
- All activity will stop when any student or instructor calls "**STOP ACTION!**"

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TASER CEWs Are Not Risk Free



Review and understand TASER current product warnings

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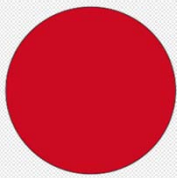
Brief Overview of CEW Technology

Arcing Probes



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TASER: Low Average Current



100 V Wall
Outlet:
16.0 A



Christmas
Tree Bulb:
1.0 A



TASER Output
X2 CEW:
0.0012

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Neuro-Muscular Incapacitation

- There are different levels of Neuro-Muscular Incapacitation (NMI) ranging from limited area effects to significant body lockup
- The greater the probe spread, the higher likelihood of NMI
- CEWs may not achieve total NMI
- Subject may maintain muscle control, particularly in arms and legs, depending on many factors including probe locations
- Be prepared with other force options, including a drive-stun follow up to expand NMI in close probe spread situations
- Drive stuns alone cause only localized pain, not NMI

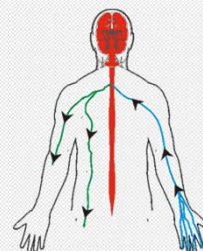
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HIGH VOLTAGE –
Greater than 1,000,000 volts

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Nervous System Stun vs. NMI



Central Nervous System

Command center – brain & spinal cord.

Motor Nervous System

Carries commands from the brain to muscles (NMI systems affect BOTH the sensory and motor nerves)

Sensory Nervous System

Brings information into the brain (affected by stun systems)

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Voluntary Exposures

Voluntary Exposure

Benefits	Risks
<ul style="list-style-type: none"> Officers can better understand the effects of the CEW <ul style="list-style-type: none"> For deployment Confidence to go "hands-on" without receiving shock Self-defense Court expertise Secondary exposures 	<ul style="list-style-type: none"> Stress, anxiety, panic Exertion and effects Strong muscle contractions and effects Discomfort or painful experience Significant injuries have occurred (SEE FULL WARNINGS)

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Voluntary Exposure

- TASER Training does **NOT** require a CEW exposure for user certification
- Voluntary CEW exposure is each agency's sole and exclusive decision
- Voluntary CEW exposures must only be conducted by a currently certified TASER Instructor adhering to TASER training
- Group CEW exposures are prohibited

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Voluntary Exposure Guidelines

- Eye protection is required for the spotters, volunteer, and anyone within the training area if probes are fired in lieu of attaching spent wires or alligator clips
- Probes should be deployed from behind the volunteer (avoids face, throat, genitals, breasts, chest or area of the heart)
- Properly supported by two spotters to prevent falls, or placed face down on the mat prior to exposure
- Realistic field probe placements only

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Voluntary Exposure

- CEW probe exposures involve strong muscle contractions and physical exertion similar to strenuous athletic activities. Risks of injury from stress, physical exertion, falling, etc. while low, are not zero (see full warnings)
- Notify instructor verbally and in writing on RELEASE form of any pre-existing injuries, medical conditions, or individual susceptibilities
- All volunteers must review the current TASER warnings and complete the RELEASE prior to any exposure

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Voluntary Exposure Guidelines

Each spotter should hold an upper arm of the standing volunteer under the armpit, so that:

- The shoulder, arm, elbow, and wrist are stabilized close to the body to prevent stress/tension on the joints
- The volunteer can be safely supported and lowered to the ground after being hit without twisting, rotating, or putting undue stress on the arm or shoulder; or flailing/jerking forward after discharge

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Voluntary Exposure Requirements

- Proper matting
- Clear area of bystanders and objects
- Make area safe
- Careful probe removal using proper protocols

Subjects with pre-existing injuries, medical conditions, or individual susceptibilities should avoid CEW exposure or areas of concern

WARNING: FAILURE TO FOLLOW SAFETY PROCEDURES INCREASES THE RISK OF INJURY

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Back Exposure



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Voluntary Exposure WARM-UP

Prior to receiving a CEW exposure, volunteers SHALL stretch and warm-up as before exercising or athletics.

- Back
- Shoulders
- Arms
- Legs
- Torso

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Probe Removal and Evidence Considerations



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Double Cartridge Exposure



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Smart Probe Evidence Considerations



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TASER X2

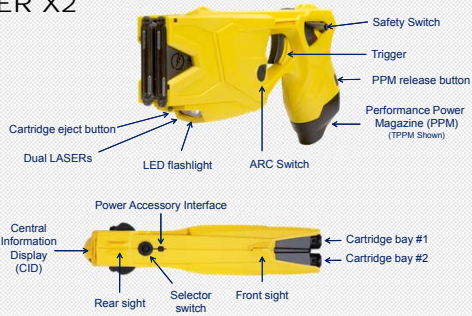
Safety Switch

- Safety Switch Down
 - (SAFE)
- Safety Switch Up
 - (ARMED)
 - Activates CID, LASER and illumination
 - Begins events in the Event log



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TASER X2



Safety Switch

- The ambidextrous safety switches do not operate independently of each other
- Do not block the safety switch on the side of the X2 while attempting to move it on the other side.
 - Blocking the safety switch can cause it to break and disable the X2
- The safety switch does not need to move very far to arm the X2
- It is highly recommended that the X2 be kept in a holster that engages the safety switch when not in use

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Dual LASERs

- The top LASER shows approximate point of impact of top dart. Bottom LASER shows approximate point of impact of bottom dart (15' & 25-foot cartridges only)
- When the X2 is loaded with a 15' or 25' cartridge, the bottom LASER will blink to differentiate between the top probe and bottom probe impact sites (e.g. horizontal or canted shots)

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X2 CEW Trigger Operation

- Single trigger pull and release discharges an electrical charge for a 5-second cycle
- Shift the safety switch down (SAFE) to stop a discharge (e.g., if accidentally discharged)
- Holding the trigger continuously beyond the 5-second cycle will continue the electrical discharge until the trigger is released (unless using an APPM)

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Know Your CEW Trigger Operation

Continuous Discharge

- Remember if you hold the trigger back the X2 will continue to discharge after the 5-second cycle until you release the trigger as long as there is sufficient battery charge (does not apply to X2 with APPM)
- Holding the trigger back may result in repeated or continuous CEW discharges, allegations of excessive force, and increased potential for subject injury

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Semi Automatic Demonstration

Video Learning Points

- X2 Operator intentionally misses with the bottom probe during a voluntary exposure
- Corrective action is simply to pull the trigger again and deploy the second cartridge from the X2 CEW

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Warning Arc



A sustained press of the ARC switch will initiate a rotational warning arc across both bays without deploying the Smart cartridges

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Semi Automatic Demonstration



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Semi Automatic Trigger Operation

- Once a cartridge is deployed and the trigger is released, the X2 immediately selects the next live cartridge
- A second trigger pull will deploy the second live cartridge

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Manual Mode Trigger Operation

- Agencies can reprogram their X2s to manual mode via Evidence.com
- In manual mode:
 - The X2 does not automatically advance to the next cartridge
 - If the X2 is not manually advanced to the next cartridge, a second trigger pull will re-energize the previously deployed cartridge
- To advance to the next cartridge quickly press the ARC switch for a quarter of a second and release
- A trigger pull will now deploy the second cartridge

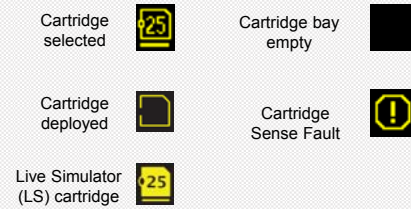
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Independent Cycles

- Pulling the trigger only affects the selected cartridge
 - Firing a second cartridge does NOT re-energize the previously deployed cartridge
- Sustained press of ARC switch will energize both bays (cartridges) until ARC switch is released*

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CID Smart Cartridge Icons



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Re-Energizing Cartridges

- Once both cartridges are deployed, the operator can select between deployed cartridges by tapping the ARC Switch
- Pulling the trigger again will re-energize the selected cartridge for a 5-second cycle, or longer if the trigger is held down unless the X2 has an APPM
- A sustained press of the ARC Switch will re-energize both deployed cartridges rotationally

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Display Counts Up

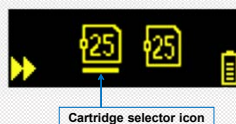
- Display counts up 1,2,3,4,5 (for single trigger pull)
- Will continue to count up (6,7,8...) if the trigger is held past the 5-second cycle



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CID - Selecting Cartridges

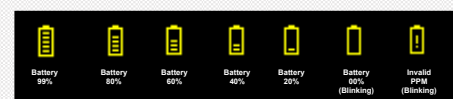
- With the safety switch in the up (ARMED) position, a quick quarter of a second tap of the ARC switch will toggle between the two Smart cartridges
- The CID will display the cartridge selector icon toggling between the cartridges



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CID - Power Source Status Icons

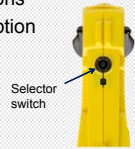
- Reads the battery consumption and displays the remaining battery life on the CID
- PPMs should be changed at $\leq 20\%$
- TASER CAM HD should be charged at $\leq 40\%$
- Bars in battery show 20% increments



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Selector Switch

- Used to access the features and options menu
- Access the options menu by pressing the selector switch
- Use only your finger to depress the selector switch
- Safety switch must be in the down (SAFE) position
- Right ARC switch scrolls through options
- Left ARC switch selects highlighted option



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PPM Replacement

1. Press the PPM release button
2. Pull down on PPM
3. Depress and hold the PPM release button
4. Insert the new PPM until it is fully seated and release the PPM release button



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Performance Power Magazine (PPM)



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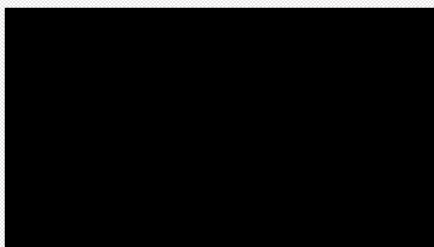
Rotational Pulse Drive™

The Rotational Pulse Drive quickly sequences discharges across both cartridge bays at a rate of approximately 19 pulses per second in each bay. It has the ability to incapacitate 2 individuals simultaneously but was primarily designed to give the operator an immediate back up shot in case of a miss or ineffective deployment.



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Axon Signal SPPM Demonstration



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Independent Fire Control System

The high voltage discharge and the cartridge firing method are completely separate allowing the operator to display a warning arc without firing cartridges

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Cross Connect

- The X2's two shot capability is intended to provide an immediate back-up shot if the first shot misses or is ineffective
- Cartridge bays operate independently and will not energize at the same time
- While the X2 can be used on two suspects at the same time, it is not recommended because it is very difficult to manage discontinuation of force if one subject becomes compliant

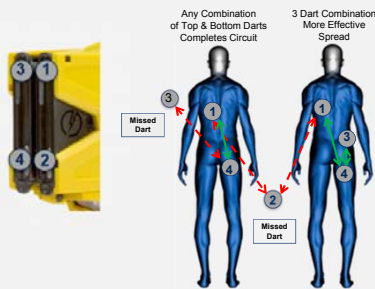
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Spark/Functionality Test

- A full 5-second Spark/Functionality test should be conducted once every 24 hours or prior to the start of your shift for individually issued X2 to:
 - Check that the X2 is sparking
 - Check battery performance
 - Check CID to ensure there are no fault icons
- Be aware of potential stress memory concerns of deactivating CEW in field use too quickly
- Follow agency protocol and Spark/Functionality Tests safety guidelines

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Cross Connect



Cross connect technology was designed to account for a missed, incomplete or ineffective first shot

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TASER Smart Cartridge

Cross Connect



- Both bays can be deployed if an officer is unable to create enough distance for an effective probe spread
- 1-2 and 3-4 will have the best connection
- There may be some residual current between 2-3 or 1-4 but not likely to cause NMI

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Smart Cartridge

- X2 CEW uses Smart cartridges which are different from TASER cartridges
- Contains small circuit board that communicates cartridge type (live vs. LS simulation), distance (15, 25) and status (loaded vs. deployed) to the X2 CEW
- Contains AFIDs similar to TASER cartridges
- Smart Cartridges have a 5-year expiration

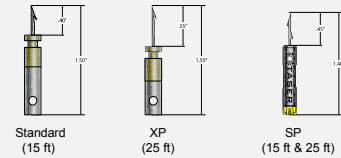
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Smart Cartridges



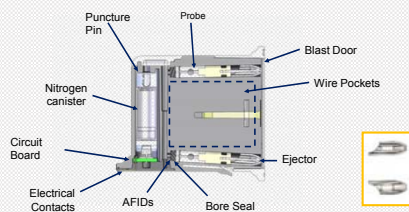
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Smart Cartridge - Probe Dimensions



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Smart Cartridge Cut Away



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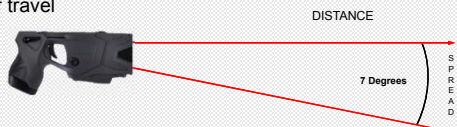
Probe Wires

- Copper Clad Steel with insulated coating
- Can break easily if stepped on or pulled
- Inadvertent contact with wires or the probe during discharge can result in electrical shock
- TASER operator should advise officers to avoid wires during restraint
- Avoid crossing wires when multiple TASER CEWs are deployed

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Probe Spread 15 & 25 ft Smart Cartridges

- Rule of thumb: ~1 foot (.3 m) spread for every 9 feet (2.7 m) of travel



	(m)	2.7m	5.4m	7.6m
Target Distance	(ft)	9'	18'	25'
Spread	(in)	12"	25"	36"
	(cm)	31cm	64cm	92cm

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AFIDs



- Each cartridge contains 20-30 Anti-Felon Identification Tags (AFIDs) with the cartridge serial number printed on them

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Inert Resettable Simulation



- Clear blast doors
- Appear on the CID as live cartridges
- No nitrogen, probes or wires
- For training only

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Basic Cleaning of the CEW

WARNING!

- Always ensure that no live cartridges are loaded in a CEW prior to cleaning or maintenance
- **IMPORTANT:** Prior to cleaning any CEW, it is highly recommended that you perform a full download

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Loading Cartridges

- Hold the Smart cartridge at both ends of the blast doors while keeping all body parts away from the front
- Ensure safety switch is in the down (SAFE) position
- Point the X2 CEW in a safe direction
- Insert the protruding end into the deployment bay until it is seated



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Basic Cleaning of the CEW

- Periodic cleaning of the outside surface area of the CEW is recommended
- Use a PDI Sanicloth™
- CEWs that are routinely exposed to salt air should be thoroughly cleaned on a frequent basis

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Basic Cleaning & Troubleshooting

Basic Cleaning



- Use an IPA swab to clean the internal battery contacts on the unit
- Gently brush the contact pins with the swab
- **DO NOT** push the swab stick into the unit with any pressure, doing so may damage the contacts

If working with a newly opened swab, be careful not to force any excess fluid from the tip of the swab into the handle.

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Cleaning the X2 Cartridge Contacts



- The IPA swab is shaped ideally for cleaning the cartridge bay contacts of the X2
- Insert the swab into the bottom of the cartridge bay – laying it flat and sliding it back until it reaches inside the contact points
- Perform for both cartridge bays



Do not attempt to insert any other foreign objects into the cartridge bays or damage to the contacts may occur.

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Cleaning CEW of Biohazards



1. Remove the cartridge
2. Remove the power source (DPM, PPM, etc.)
3. Using the PDI Sanicloth™, wipe the material from the CEW. Make sure to wipe every surface of the CEW including inside the handle
4. DO NOT press too hard into the handle of the unit. Doing so may result in damage to the battery contacts
5. Let the CEW sit for 30 to 45 minutes before replacing the power source
6. After replacing the power source, perform three 5-second spark tests
7. Perform a data download and sync the CEW

Basic Cleaning of the PPM

The battery contacts on CEWs should be cleaned periodically for the highest performance of the CEW and its power source



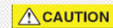
PPM Contacts

- Use the IPA swab to clean the contacts on the PPM
- You may see a small amount of black (carbon) or white (oxidation) buildup on the contacts – using the swab will help clean this material off and improve contact between the battery and the CEW

In addition to carbon buildup or oxidation, small pieces of dirt or lint can also buildup on the contacts and possibly affect performance.

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Exposure to Water



DO NOT attempt to use a CEW that has been completely submerged in water

- If a CEW gets completely submerged in water, ensure the safety switch is in the down (SAFE) position and remove the cartridge(s) and power source
- Follow the RMA process to submit the CEW to Axon Enterprise

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Cleaning with Compressed Air

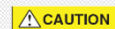
Clean CEWs periodically with canned air to remove foreign material like dust and dirt from the contacts



Use canned compressed air only. Do not use an air compressor as this may force moisture into the device.

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Exposure to Water



Failure to perform the following steps may result in an unintentional discharge when the safety switch is placed in the up (ARMED) position

- TASER CEWs exposed to extreme moisture have discharged with the safety switch still in the down (SAFE) position due to the moisture short circuiting the electronic components
- Cartridges that are exposed to significant moisture must be disposed of

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Exposure to Water



The following procedure is for those CEWs exposed to a significant amount of moisture but not completely submerged in water.

1. Ensure the safety switch is in the down (SAFE) position and remove the cartridge(s) following the safe procedures outlined in the user manual and training material
2. Remove the power source
3. Wipe down all exposed surfaces including inside the cartridge bays
4. Allow the CEW to air dry for 24 hours before proceeding
 - Warm dry air is preferred – do not use a hair dryer or other external heat source (e.g. microwave oven, etc.)

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Smart Weapon Troubleshooting



- Never perform troubleshooting on a loaded device.
- Always point the CEW in a safe direction and never place hands or other parts of the body in front of the CEW.

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Exposure to Water

5. After 24 hours, ensure that all components are completely dry; replace the power source
 - Wait one minute before proceeding to the next step. Verify that the CEW is not getting warm or showing signs of short-circuiting
6. Point the front of the CEW away from you, place the safety switch in the up (ARMED) position and observe the CEW
 - If the CEW discharges without pulling the trigger, put the safety switch in the down (SAFE) position, remove the power source and return to TASER via the RMA process if it is still under warranty
 - If the CEW does not discharge without pulling the trigger, conduct three complete sparks tests for a full 5-seconds each to ensure the proper pulse rate and that the cycle stops at 5 seconds

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Troubleshooting – Major Fault

SYMPTOM

- CID shows a major fault icon



DIAGNOSTIC STEPS

- The X2 detected a fault in the ability to properly log firing events.
- Connect the CEW to Evidence Sync to Synchronize the internal clock and check for firmware updates.
- Return the X2 via RMA noting “Major Fault” in the description if the issue remains.

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Exposure to Water

7. If the CEW does not operate normally, ensure the safety switch is in the down (SAFE) position and remove the power source
 - Return the CEW to TASER via the RMA process if it is still under warranty
8. If the CEW does function normally, ensure the safety switch is in the down (SAFE) position
 - Download and sync the CEW to ensure the internal time is correct.
 - Ensure that the three spark tests were recorded properly in the download records. Return the CEW to service

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Troubleshooting – Critical Fault

SYMPTOM

- CID shows a critical fault icon



DIAGNOSTIC STEPS

- The X2 detected a problem with the communication with the High Voltage Module, or the Cartridge Illumination Module (X2 only).
- As a result, the X2 will not function and must be returned via the RMA process noting “Critical Fault” as the description.

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Troubleshooting General Guidance

- Flashlight/LASER inoperable
 - Verify that the CEW is not in stealth mode
 - Verify that these functions haven't been disabled on the CEW by the user
- Bottom LASER inoperable (X2 Only)
 - Is designed to shut off when no active cartridge is installed
- CID is dim
 - Verify that the CEW is not in stealth mode

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Smart CEW Firmware Updates

- Updated operating firmware can be downloaded to the CEW from Evidence.com Lite (free version)
- Evidence.com will indicate if your CEW has the most current firmware
- Firmware updates can also be downloaded to a PC from TASER.com through Evidence Sync software

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Troubleshooting General Guidance

- PPMs are draining quickly
 - Ensure that you are using a TASER approved holster to properly secure the safety switch
 - Remove the PPM during long term storage.

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X2 Troubleshooting

- | | |
|------------------|---|
| SYMPTOM | ▪ No spark when trigger is pulled |
| <hr/> | |
| DIAGNOSTIC STEPS | <ul style="list-style-type: none"> ▪ Verify that the X2 has the latest firmware. ▪ Check battery capacity – if greater than 20% ▪ Depress ARC switch for at least 3 seconds. ▪ If spark is present at both bays, the problem is with the trigger. ▪ Place safety switch to the down (SAFE) position and return the device via RMA noting “No spark – trigger fault” in the description. |

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Troubleshooting General Guidance

Update your Firmware!

- TASER continues to make improvements to Smart CEWs, as well as add new functionality.
- A regularly scheduled firmware maintenance process is critical to the sustained life of Smart CEWs.
- All CEWs should be programmed with the updated firmware ASAP
- Failure to update firmware could affect Smart CEWs performance and shorten its useful life

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X2 Troubleshooting

- | | |
|------------------|---|
| SYMPTOM | ▪ No spark when trigger is pulled (Con't.) |
| <hr/> | |
| DIAGNOSTIC STEPS | <ul style="list-style-type: none"> ▪ If no spark at both bays, replace with a new PPM and proceed to next step. ▪ Point the X2 in a safe direction and turn safety switch to the up (ARMED) position. ▪ Press trigger. ▪ Depress ARC switch for at least 3 seconds. ▪ If CEW sparks with trigger pull and with ARC switch in both bays, then the issue was with the old PPM. ▪ If CEW does not spark with trigger pull and/or ARC switch, return via RMA. |

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X2 Troubleshooting

SYMPTOM

- CID does not display the correct cartridge type



= 15' Live Cartridge in bay



= Bay is Empty



= 25' Live Cartridge in bay



= Deployed Cartridge in bay

DIAGNOSTIC STEPS

- Place the safety switch in the down (SAFE) position.
- Clean the contacts on the cartridge and in the cartridge bay.
- If correct cartridge type is not shown, insert a new cartridge in the bay displaying wrong cartridge type.
- Return cartridge with the wrong cartridge type via RMA with "Cartridge Configuration Fault" in the description.

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4th Amendment Standard

- All officers must comply with the 4th Amendment when using TASER CEWs
- It is up to your agency to set its own policies for the use of TASER CEWs, which may be more restrictive than the Fourth Amendment standard
- TASER provides Smart Use Considerations for the use of TASER CEWs, but does not set the standard

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Smart Cartridge Micro Fractures



- Repeated arcing with the same smart cartridges loaded into an X2 can cause small micro fractures to appear on the blast doors
- These micro fractures do not affect the ability of the smart cartridge to perform in the field (e.g. probe deployment, drive stuns, etc.)
- These micro fractures in the blast doors may cause the arc to occur inside the smart cartridge and not be visible to the user, however the cartridge will still perform as expected for drive stuns and probe deployments

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4th Amendment Standard

Graham v. Connor, 490 U.S. 386 (1989)

- Officer's force must be objectively reasonable under the totality of circumstances as reasonably perceived by the officer at the moment the force is used
- 3 Main Factors:
 - the severity of the crime at issue
 - whether the suspect poses an immediate threat to the safety of the officers or others
 - whether subject is actively resisting arrest or attempting to evade arrest by flight

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CEW Smart Use Considerations

CEW Smart Use Considerations

When Reasonable:

- Use the minimum force necessary to accomplish lawful objectives
- Use force only on those "**actively resisting**" or higher
- Give a verbal warning before the use of force
- Give subjects a reasonable opportunity to comply before force is used or repeated
- Immediately cease any force once a subject is under control

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CEW Smart Use Considerations

- Ensure CEW use is within:
 - Law (correctly applied legal standards of care) and
 - Within policy and training
- Do not use CEW for:
 - verbal defiance
 - belligerence
 - punishment
 - horse play

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CEW Smart Use Considerations

- Avoid using CEW drive stuns *except*:
 - 3 or 4-point contact to complete circuit or increase probe spread
 - “break-contact” or distraction tactic create reactionary distance
 - brief application to attempt pain compliance
- Do not repeat drive stuns if compliance not achieved
- Do not use drive stuns if pain is unlikely to gain compliance due to mind-body disconnect (psychotic episode) or increased pain tolerance (drugs/alcohol)

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CEW Smart Use Considerations

- Follow “targeting guidelines” when feasible, avoiding the chest and splitting the beltline for close-range shots
- Use 5-second “window of opportunity” to restrain and “cuff under power”
- Be able to justify every CEW trigger pull or 5-seconds of discharge under the specific circumstances presented

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Brief Overview of Select Medical and Safety Findings

Review TASER's CEW Research Index and other documents and materials on Axon's website

CEW Smart Use Considerations

- Avoid repeated or continuous CEW exposures unless necessary to counter immediate threat
- Avoid using CEW on vulnerable or higher risk populations (e.g. small children, elderly, pregnant) unless necessary to counter immediate threat
- Monitor subject post-CEW use. As with any use of force, if subject is unresponsive, initiate EMS/CPR protocols

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Cardiac

Experts have identified the following key factors related to CEW cardiac risks:

- Dart-to-heart distances
- Amount of delivered electrical charge

The further the CEW dart is away from the heart and the fewer CEW cycles applied, the lower the risk of the CEW affecting the heart

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Cardiac

CEW cardiac risks are low, but not zero

To reduce cardiac risks (when possible):

- Target the back
- Avoid targeting the chest
- Avoid repeated or continuous exposures

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Avoid Extended or Repeated Applications

Each trigger pull must be legally justified

- Use the shortest duration of CEW exposure necessary to accomplish lawful objectives
- Reassess the subject's behavior before repeating or continuing the exposure, and provide breaks in the CEW stimulation when practicable
- Several law enforcement groups (e.g. IACP, PERF, COPS, DOJ) have established 15 seconds of CEW exposure (multiple applications or continuous) as a significant safety point

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Physiologic/Metabolic Effects

CEWs may produce effects that could increase the risk of sudden death, including changes in:

- Blood chemistry
- Blood pressure
- Respiration
- Heart rate and rhythm
- Adrenaline and stress hormones

The longer the CEW exposure, the greater the potential effects. Use reasonable efforts to minimize the number and duration of CEW exposures

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Higher Risk Populations

CEWs, like other force options, have not been laboratory tested on:

- Pregnant women
- Elderly
- Small children
- Low body-mass index / very thin persons

CEW use on these individuals could increase the risk of death or serious injury

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Physiologic and metabolic effects

Studies show CEW effects are usually comparable to or less than:

- Fighting
- Fleeing

Numerous human studies have shown lower CEW effects on human physiology compared to some other force options

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Medically Compromised Persons

- Any law enforcement use of force, including a CEW, may cause or contribute to death or serious injury
- Law enforcement personnel are called upon to deal with individuals in crises that are often medically compromised and who may be susceptible to arrest-related death
- The subject may already be at risk of death or serious injury as a result of pre-existing conditions, individual susceptibilities, or other factors
- **Follow your agency's guidance and policies when dealing with medically compromised persons**

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Independent Conclusions

All CEW users are encouraged to do their own research and analysis

Some of the latest CEW research can be viewed at:

<https://www.axon.com/legal>



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Probe Placement

Effectiveness is directly related to probe spread and probe location

- Greater probe spreads increase effectiveness
- Probe spreads typically are more effective if one probe is above and the other probe is below the beltline

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Tactical Considerations

Preferred Target Zone Rear (when possible)

Below neck (blue zone)

- Large muscles
- Avoid head

The back is always the preferred target area when reasonably practicable



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Holster: Pros & Cons

Support Side Carry	Dominant Side Carry
+ Lower Risk of Drawing Wrong Weapon Under Stress	+ Weapon Retention
+ Hip crossdraw = Faster Engagement on Target	
+ Easier ID as a CEW By Other Officers	Higher risk of weapon confusion
Weapon retention issues, depending on DT training	Known incidents of shootings by mistaken weapon confusion
<i>Refer to your department's tactical experts to make your own policy on how to carry, holster, and deploy the TASER CEW</i>	

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Preferred Target Zone Front (when possible)

Lower torso (blue zone below chest)

- More effective
 - Larger muscles
 - Split the beltline
- Reduces risk of hitting sensitive body areas (see product warnings)
- Increases dart-to-heart safety margin distances
- Do not intentionally target genitals



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Probe Placement

- If practicable, deploy probes in preferred target zones of suspect's back:
 - Clothing fits tighter
 - Surprise factor
 - Stronger muscles – usually even more overwhelming
- SP cartridges are more effective in reducing clothing disconnects
- Keep CEW in line with target
 - Vertical vs. Horizontal (subject lying down)
- Get both probes in preferred target zones

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Tactical Considerations

- Have reasonable and appropriate force options available when practical
- Consider cover and distance tactics
- When practical:
 - have at least one back-up officer present to control/cuff under power
 - consider landing zone

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Probe Placement

Avoid intentionally targeting the CEW on sensitive areas of the body such as the head, throat, breast, chest or area of the heart, genitals, or known pre-existing injury areas without legal justification



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Injuries From Falls

- NMI frequently causes subject to fall
- Falls are often uncontrolled and subjects are often unable to protect or catch themselves
 - Falls, even from ground level, can cause serious injuries or death (especially on a hard surface)

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TASER Conductive Targets

Conductive full-size targets available from TASER

- Preferred target zones
- Auditory feedback
- Allows targeting of lower body and legs
- Practice splitting the beltline



Upper limit of preferred target zone

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Tactical Considerations

- **Keep** sufficient slack in the wires
- **Move** with the subject if they start to roll
- **Consider:** If only one probe hits or low probe spread, consider drive stun follow-up with cartridge still in place (X26/P) or discharging a second cartridge (X2)

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Be Careful of Distractions

- There are incidents/cases where officers have been accused of using excessive CEW exposures caused by distractions (including by nearby family members, bystanders, incident witnesses), stress, etc.
- Be alert to and avoid potential or occurring distractions that may result in unnecessary additional 5-second CEW cycles or extended exposures

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Small Probe Spread Video



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Deployment Distance Considerations

Deployments from 0-7 feet (0 – 2 meters)

- High hit probability BUT limited probe spread
- Split the beltline to increase effectiveness
- A minimum 12-inch probe spread is optimal



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Close Distance Video

Video Learning Points

- Both probes in the chest
- Little spread
- Some effect but not NMI
- Subject able to pull out probes

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Small Probe Spread Video

Video Learning Points

- Voluntary exposure with small probe spread on the back of the left leg
- Subject feeling the effects of the cycle, however still able to deliver effective baton strikes

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Close Distance Video



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Close Quarters Video

Video Learning Points

- Small civil courtroom
- Suspect, victim and witness very close
- Bailiff deploys X26 at very close range
 - Initially forgot to arm the X26
 - Avoids victim and witness
 - Suspect incapacitated and held until backup arrives
- Would baton or pepper spray have been a good option?

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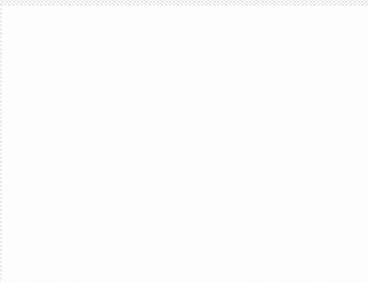
Deployment Distance Considerations

Deployments from 15 – 25 feet (4.5 – 7.6 m):

- May be out of range of 15/21' cartridges
- Fair hit probability with both probes
- Large probe spread = large amount of muscle affected
- Less slack in wires
- Larger reactionary distance

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Close Quarters Video



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Some Causes of Limited Effectiveness

- Miss or single dart hit
- Close probe spread
- Incomplete, broken, or intermittent circuit
- Loose or thick clothing
- Low nerve or muscle mass
- Obese subject
- Wires break, touch each other, or fall on a conductive surface
- Operator error

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Deployment Distance Considerations

Deployments from 7-15 feet (2 – 4.5 meters)

- Optimal distance
- Good hit probability with both probes
- Greater probe spread
- Slack in wires
- Large reactionary distance

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Look for a Change in Behavior

- Look AND listen when evaluating the effectiveness of a CEW deployment
 - Watch the subject's reaction
 - Look for a change in behavior
- Loud arcing sound typically indicates NO connection
- Intermittent arcing typically indicates a poor connection such as a clothing disconnect

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Intermittent Connection

Video Learning Points

- Voluntary exposure in conjunction with CEW training
- Volunteer is wearing a loose fitting shirt
- Spotters lower him immediately after the deployment, effectively closing the distance between the bottom probe and the volunteer's skin

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Ineffective Front Shot Video

Video Learning Points

- Thick, loose clothing on upper torso
- OC deployment prior to CEW usage failed to achieve compliance
- No discernable effect from CEW
- Officers transitioned to hands-on

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Intermittent Connection



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Ineffective Front Shot



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Contingencies

- CEW may have limited or no effect
- No weapon system will operate or be effective all of the time
- A CEW or cartridge may not fire or be effective
- Reload new cartridge and re-engage if legally justified (X26/P)
- Advance to next cartridge and re-engage (X2)
- Employ other force options, other alternatives, or disengage

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Flammability

- TASER CEW can ignite explosive materials, liquids, fumes, gases, vapors, or other flammable substances
(Gasoline, sewer gases, meth labs, flammable personal defense sprays, hair gels, butane lighters, etc.)
- Some propulsion agents (carriers) are flammable
- Do not deploy a CEW in conjunction with flammable personal defense sprays

Note: Test to make sure your personal defense spray is not flammable

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Increased Deployment Risk Examples

Subject:

- On an elevated position or platform
- Running or under momentum
- Operating vehicle or machinery
- In flammable or explosive environment
- Obviously pregnant
- In water, mud, muck (drowning risk)
- Sensitive target areas
- Obviously frail or infirm
- Low body mass
- Probes in heart or chest area
- Extended, repeated, or continuous discharges

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Single Officer Deployment

Video Learning Points

- No immediately available handcuff/control officers
- Apparent effective CEW front shot
- What to do with the CEW immediately after the deployment?
 - Re-holster? Does your CEW holster maintain wire integrity?
 - Lay the CEW on the ground?
 - Await back-up if available?

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Water Deployment Video

Video Learning Points

- Emotionally disturbed subject standing next to an in-ground swimming pool
- Firearm lying at his feet on pool deck
- Above and below the beltline shot placement
- Officers entered same body of water as the subject during the cycle

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Single Officer Deployment



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Water Deployment Video



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Controlling/Cuffing Under Power

You can go hands on with the subject during the 5-second cycle without feeling the effects of NMI.

- Electricity generally follows the path of least resistance
- Use each 5-second cycle as a "window of opportunity" to control/cuff while the subject is affected
- Cuffing under power can reduce the need for repeated or extended CEW exposures

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Control and Cuffing under power Video

Video Learning Points

- Subject with a knife
- Several Use of Force option back-up/cover officers
- TASER CEW deployed to subjects back area
- Controlled and cuffed under power

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Inmate Under Power Video



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Control and Cuffing under power Video



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Suicidal Subjects

- Follow your agency's policy and basic officer safety rules/training when dealing with suicidal subjects
- CEWs may be an effective way to deal with suicidal subjects
- The CEW is NOT a substitute for deadly force
- Establish deadly-force cover as needed and available

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Inmate Under Power Video

Video Learning Points

- Consideration given to splitting the belt line
- Handcuff/Control officers readily available
- Good verbal communication

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Suicidal Man with a Knife De-escalation Video

Video Learning Points

- Subject with a knife
- Several Use of Force option back-up/cover officers
- Clear commands in attempt to de-escalate

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Suicidal Man with a Knife De-escalation Video



© 2018 Axon Enterprise, Inc.

Drive Stun

Subject with a Knife De-escalation Video

Video Learning Points

- Subject with a knife
- Several Use of Force option back-up/cover officers
- Clear communication in attempt to de-escalate

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Probe Deployment vs Drive Stun

Probe deployments are more desirable/effective than drive stuns (other than 3-point deployments)

- NMI vs. pain compliance
- Can be applied from a safer distance
- Usually require fewer cycles

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Subject with a Knife De-escalation Video



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Drive Stun

- Use care when applying the drive stun near the neck or groin (yellow)
- Avoid areas that can be easily crushed like the trachea (red), the back of the neck, and the genitals
- Follow agency policy



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Drive Stun

- To use the drive stun without deploying the probes depress the ARC switch (X2)
- If not effective, transition to alternative force option

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Effects on Animals

If CEW's are used on animals, consider having animal control stand by to apply a restraint during the cycle

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Drive Stun with Live Smart Cartridge

Can be effective

- Probes may not deploy if in direct contact with the subject
- Will not cause NMI

Alternative

- Deploy probes at close range and apply (3-4 point) drive stun away from probe impact sites to increase NMI potential

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Animal Use Video



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Animals

Police/Military K-9 Caution

- If K-9 bites probe or between probes during CEW deployment, the dog may receive a shock
- An electrical shock to a K-9 may result in a hesitant, hesitating, or bite adverse K-9
- Develop procedures and train K-9 handlers and CEW operators on this issue

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Post Incident

Probe Removal Policy Considerations

- May officers remove probes?
 - Common probe penetration
 - Sensitive location probe penetration
 - Uncommon probe penetration
- Proper handling of removed probes
 - Bio-hazard
 - Evidentiary value

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Post Incident

- Record incident from officer's point of view
- Fully document
 - Subject's threats, behaviors, and actions
 - Each application of force
 - Each CEW trigger pull or 5-second discharge
 - Each injury or alleged injury

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Probe Removal Follow-up

- Note if probes penetrated skin
- Photographs of impact site and injuries
- Medical follow-up
- Ensure probe and barb are intact

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Post Incident

- Consider using your radio to establish record of significant events with dispatch time logs (call in):
 - Immediately at end of CEW use
 - Immediately upon subject being handcuffed
- Monitor subject's medical condition and report any changes
- As with any use of force, if subject is unresponsive, initiate EMS/CPR protocols

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Considerations for Handling Used Probes (Field Deployments)



- Factors to be considered include:
- Unanticipated probe-related injury
 - Probe in sensitive area
 - Deeper embedment of probe due to movement, body position, or pressure on probe
 - Evidence collection, proper storage, and retention*

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Considerations for Handling Used Probes (Field Deployments & Training)



- Treat probes that have penetrated the body as contaminated needles (use gloves)
- Grab probe firmly and quickly pull (pluck) straight out (consistent with agency policy)
- Carefully place used probes sharp-tip first into either a sharps container or into the cartridge side wire pocket container, secure in place, and place in a secure location where no one will accidentally touch probes

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Evidence Sync and Evidence.com

Evidence Collection

Consider (consistent with legal requirements and agency policy):

- Photographing injuries, probe impact or energy arcing sites or contact points
- Collecting cartridge, probes, AFIDs
- TASER CEW Evidence Collection and Analysis Course

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Evidence.com and Evidence Sync

- The following slides will offer a very brief overview of Evidence.com and Evidence Sync. There is a full tutorial on Evidence.com and Evidence Sync located on axon.com: <https://www.axon.com/training/resources>

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Critical Event Assistance

- A Critical Events contact form can be submitted through:
 - <https://returns.axon.com/CriticalEventsForm.aspx>
- Once submitted (law enforcement only), you will be contacted as soon as possible by a TASER representative.
- **While you wait for our response, please download the [Critical Event Checklist](https://returns.axon.com/Documents/CriticalEventsForm/Critical-Event-Checklist.pdf).**
 - <https://returns.axon.com/Documents/CriticalEventsForm/Critical-Event-Checklist.pdf>

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Evidence.com

Evidence.com is a program offered by Axon that makes it easy for agencies of any size to manage CEW related material, collect, transfer, manage, retrieve and share any form of digital evidence.

There are two versions available:

- Evidence.com Lite – free version
- Evidence.com Pro – fee based subscription program

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What is Evidence Sync?

- Evidence Sync is a software offered by Axon that allows agencies to:
 - Access TASER CEW firing data
 - Update firmware on CEWs
 - Automatic time sync of CEWs
 - Assign TASER CEWs in conjunction with your agency's Evidence.com account

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Event log

The Event log tracks events. An event begins when the safety is moved to the up (ARMED) position and ends when it is moved to the down (SAFE) position. The Event log also stores deployment events for each cartridge bay: cartridge type, deployment status (whether the cartridge actually deployed or not), trigger pull vs. ARC switch activation, duration of cycle, date, and time.

The Event log also stores system configuration change events: (e.g. if the date, time, time sync, LASER, or flashlight settings are viewed or changed).



Event ID	Event Type	Event Date/Time	Device ID	Device Name	Device Status
1	System Configuration Change	11/11/2017 10:11:11 AM	12345	Device 1	Online
2	System Configuration Change	11/11/2017 10:11:11 AM	12345	Device 1	Online
3	System Configuration Change	11/11/2017 10:11:11 AM	12345	Device 1	Online
4	System Configuration Change	11/11/2017 10:11:11 AM	12345	Device 1	Online

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Quarterly Downloads

- TASER Training recommends that these downloads be conducted on a quarterly basis, at a minimum
- This recommendation is based on the following overall goals:
 - Verify that the CEW has the most recent firmware installed.
 - Check the overall condition and functionality of the CEW; including spark rate, power source level and presence of any fault icons
 - Validate that recommended pre-shift or daily functionality/spark tests are being conducted via the CEW firing records
 - Retention of CEW firing records

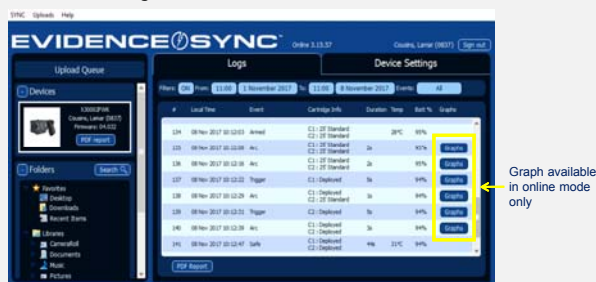
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Pulse Graph

- Pulse graph records pulse activity from trigger pulls and warning Arc displays.
- Pulse graph data does not reflect actual voltage or charge delivered into a target. In other words, the energy is metered at the weapon and the energy delivered to the target will ALWAYS be less than when it leaves the weapon due to various levels of resistance.

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Evidence Sync



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Pulse Graph

- The "Arc" and "Stimulation" information in the Pulse graph provide information intended to illustrate the CEW's ongoing efforts to achieve a complete circuit. The Arc and Stimulation portions of the graphs indicate the "Arc" and "Stimulation" in voltage (labeled on the left side of the graph)
- The "Charge" portion of the graph often provides the most beneficial information to the end user by indicating whether or not a complete circuit has been achieved. The Charge portion of the graph indicates the charge in microcoulombs (labeled on the right side of the graph) as determined by electronic circuitry inside the CEW; the data does not reflect actual charge delivered into the target

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Pulse graphs

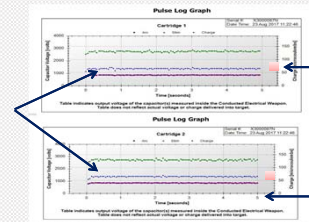
- The following slides are intended to provide various examples of voluntary exposures and the graphs that resulted
- These slides are not intended to illustrate Pulse graphs that may be generated by usage in the field
- Users are encouraged to pay particular attention to how the Pulse graphs vary and how they differ from video-to-video (e.g. exposure-to-exposure)

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Double Cartridge Exposure

Pulse graphs

Consistent charge showing there is a discharge path from the weapon to a conductive target



Charge is within CEW specified tolerance range

Graph indicates duration was 5 seconds

Event Log PDF

Seq #	Event Time	Event	Event Type	Duration	Charge	Ref Referring
1	20-Aug-2017 11:02:00	Arrest	CEW	0.00	0.00	
2	20-Aug-2017 11:02:00	Arrest	CEW	0.00	0.00	
3	20-Aug-2017 11:02:00	Arrest	CEW	0.00	0.00	
4	20-Aug-2017 11:02:00	Arrest	CEW	0.00	0.00	
5	20-Aug-2017 11:02:00	Arrest	CEW	0.00	0.00	

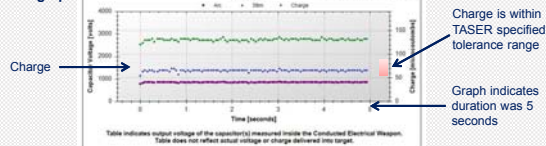
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Event Log and Pulse Graph Example

Event log PDF

Seq #	Event Time	Event	Event Type	Duration	Charge	Ref Referring
1	20-Aug-2017 11:02:00	Arrest	CEW	0.00	0.00	
2	20-Aug-2017 11:02:00	Arrest	CEW	0.00	0.00	
3	20-Aug-2017 11:02:00	Arrest	CEW	0.00	0.00	
4	20-Aug-2017 11:02:00	Arrest	CEW	0.00	0.00	
5	20-Aug-2017 11:02:00	Arrest	CEW	0.00	0.00	

Pulse graph



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Open Circuit - Change in PPS

- Smart Weapon firmware 4.029 allows the PPS rate to drop to approximately 9 PPS upon detection of an open circuit
- Designed in an effort to improve the service life of the Smart CEW's
- Upon detecting a closed circuit, the PPS immediately returns to 19 PPS
- This PPS reduction will only take place during an open or incomplete circuit (e.g. single probe hit, clothing disconnect, etc.)
- This change in PPS will not affect daily functionality checks, drive-stuns, or effective probe deployments

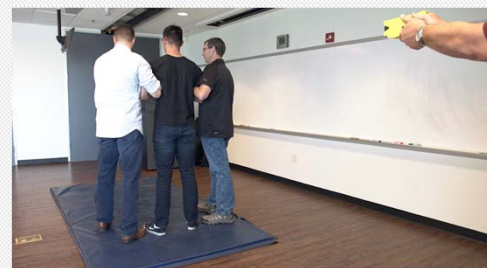
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Double Cartridge Exposure



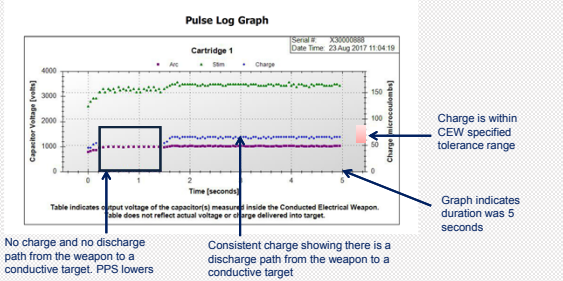
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Open Circuit - Brief Clothing Disconnect



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Open Circuit - Brief Clothing Disconnect



Basic Drills
Live Fire Drills
Practical Exercises
Conclusion and Written Examinations

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